

PATENT COOPERATION TREATY

PCTINTERNATIONAL SEARCH REPORT
(PCT Article 18 and Rules 43 and 44)

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24 MARS 2005
BCESENCR1 / IIP

Applicant's or agent's file reference 08400-038	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below
International application No. PCT/CA2004/001970	International filing date (<i>day/month/year</i>) 15 novembre 2004 (15-11-2004)	Priority date (<i>day/month/year</i>) 13 novembre 2003 (13-11-2003)

Applicant

CENTRE HOSPITALIER DE L'UNIVERSITE DE MONTREAL (CHUM) ET AL

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. Certain claims were found unsearchable (see Box No. II).

3. Unity of invention is lacking (see Box No. III).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows :

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 19

as suggested by the applicant.

as selected by this authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2004/001970

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06T-5/00 G06T-7/00 A61B-8/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G06T-5/00, G06T-7/00, A61B-8/00 in combination with keywords

Documentation searched other than minimum documentation to the extent that such documents are included in the fields

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Canadian Patents database, USPTO WEST, Questel-Orbit (Pluspat), IEEE Xplore, Google Scholar (search terms: image, fast marching model, blood, vessel)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
X	Handbook of Medical Imaging, Vol.2: Medical Image Processing and Analysis, Milan Sonka and J. Michael Fitzpatrick Editors, SPIE Press vol. PM80 June 2000 (1,108 pages). Chapter 3: "Image Segmentation Using Deformable Models", Chenyang Xu, Dzung L. Pham, Jerry L. Prince, pages 129-174. also available at: http://www.control.auc.dk/~mpko00/literature/modelling/xu00image.pdf	1-39
X, P	"Intravascular Ultrasound Image Segmentation: A Fast-Marching Method", Marie-Hélène Cloutier et al., Lecture Notes in Computer Science, Publisher: Springer-Verlag GmbH, ISSN: 0302-9743, Volume 2879/2003, Editors Randy E. Ellis, Terry M. Peters, pp. 432 - 439 (Medical Image Computing and Computer-Assisted Intervention -MICCAI 2003, 6th International Conference, Montréal, Canada, November 15-18, 2003)	1-39

[x] Further documents are listed in the continuation of Box C. [x] See patent family annex.

- * Special categories of cited documents :
 - "A" document defining the general state of the art which is not considered to be of particular relevance
 - "E" earlier application or patent but published on or after the international filing date
 - "L" document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 - "O" document referring to an oral disclosure, use, exhibition or other means
 - "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search 10 March 1005 (10-03-2005)	Date of mailing of the international search report 21 mars 2005 (21-03-2005)
Name and mailing address of the ISA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9	Authorized officer Serge Carrier (819) 997-2322

INTERNATIONAL SEARCH REPORT

International application No. PCT/CA2004/001970
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
A	"A Fast Minimal Path Active Contour Model", Chao Han et al., IEEE Transactions on Image Processing, Vol. 10, No. 6, June 2001, pp. 865-873.	1,22,30,32,33
A	"Computational Geometry for Patient-Specific Reconstruction and Meshing of Blood Vessels from MR and CT Angiography", Luca Antiga et al., IEEE Transactions on Medical Imaging, Vol. 22, No. 5, May 2003, pp. 674-684.	1,22,30,32,33
A	WO 03/041584, Suri Jasjit S. et al., A61B-6/00, May 22, 2003 abstract and page 37, lines 16-17.	1,22,30,32,33

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/CA2004/001970

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
WO03041584	22-05-2003	US6842638 B1 WO03041584 A2	11-01-2005 22-05-2003